

***Spelaeobochica muchmorei* sp. n., a new cavernicolous pseudoscorpion (Pseudoscorpiones: Bochicidae) from Brazil (São Paulo State)**

Renata de ANDRADE¹ & Volker MAHNERT²

¹ Departamento de Zoologia – IB USP, rua do Matão, transversa 14 – no. 101, 05508-900 Butantã-São Paulo, Brazil. E-mail: reandrad@ib.usp.br

² Muséum d'histoire naturelle, case postale 6434, CH-1211 Genève 6, Switzerland. E-mail: volker.mahnert@mhn.ville-ge.ch

***Spelaeobochica muchmorei* sp. n., a new cavernicolous pseudoscorpion (Pseudoscorpiones: Bochicidae) from Brazil (São Paulo State).** - The new species is described and figured. It differs from the type species *Spelaeobochica allodentatus* Mahnert, 2001 mainly by its much more slender pedipalps and much bigger size. It occurs in the Areias caves complex, situated in a rainforest region (Ribeira Valley, São Paulo) of Brazil and is considered as troglobitic species (restricted to hypogean environment).

Key-words: Pseudoscorpiones - Bochicidae - *Spelaeobochica* - cave - taxonomy.

INTRODUCTION

In a recent study (Mahnert, 2001) 25 nominal species had been recorded from more than 100 Brazilian caves, including the description of the first member of the family Bochicidae from Brazil, *Spelaeobochica allodentatus* Mahnert. Of all these species, only *Pseudochthonius strinatii* Beier was considered as troglobite (restricted to subterranean environment).

In this paper, a second species of this bochicid genus is described. It lives in caves of the Ribeira Valley (the same karstic area where *P. strinatii* occurs) and seems highly adapted to the hypogean habitat.

The holotype and paratype tritonymph of this new species are deposited in the collection of the Museu de Zoologia da Universidade de São Paulo, and the paratype female at the Museum of Natural History of Geneva. The material studied is conserved in alcohol 70%.

DESCRIPTION

***Spelaeobochica muchmorei* sp. n.**

Figs 1-8

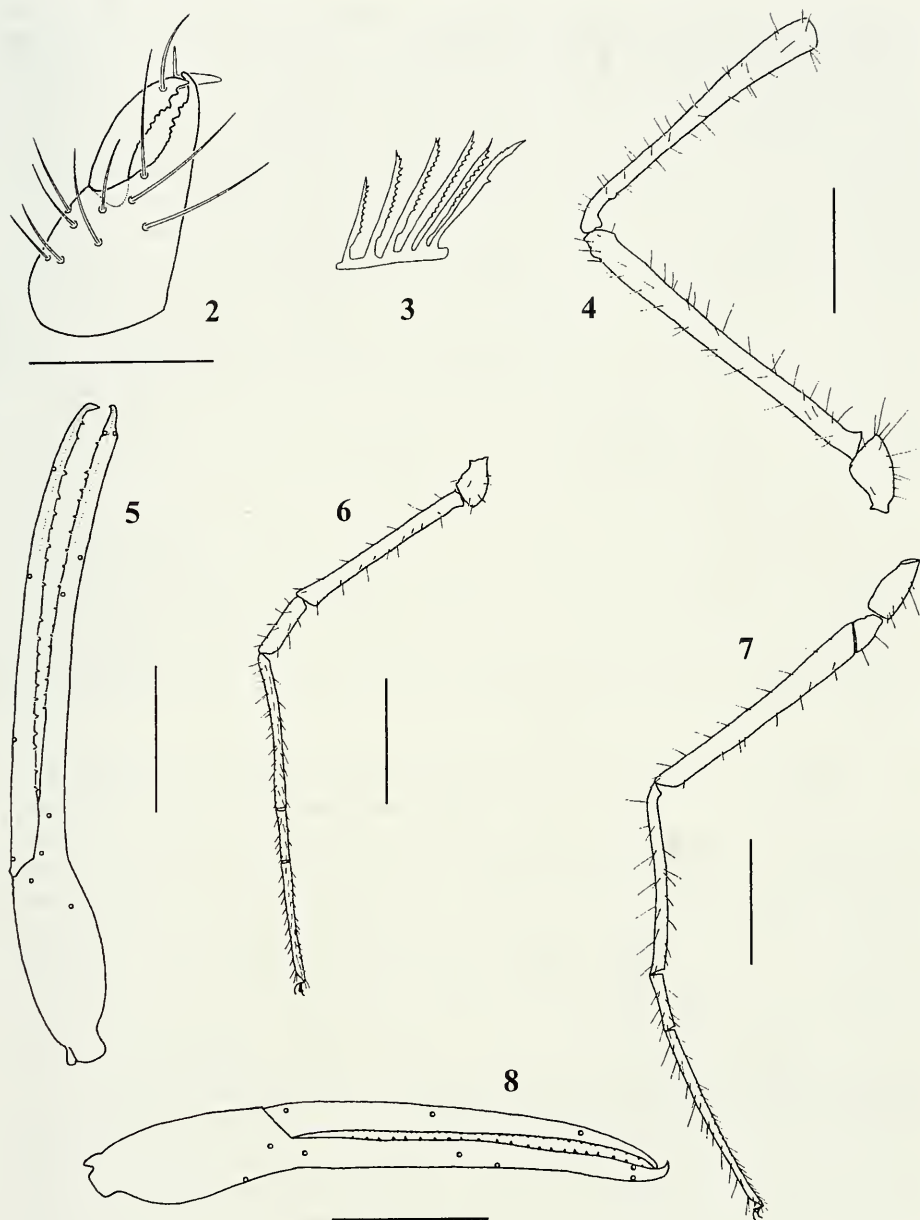
Material: Brazil, São Paulo. Gruta Ressurgência das Areias, on rock substrate (walking on the wall), lg. R. Andrade, 3.X.2001: 1 ♀ (holotype) (MZSP 21355) (fig.1) ; Gruta Areias de Cima, lg. R. B. Pascoaloto, 16.X.2001: 1 ♀ (paratype), on rock substrate; 2001: 1 tritonymph (paratype) (MZSP 21356), in crevices in silt bank.



FIG. 1

Habitus of *Spelaeobochica muchmorei* sp. n. (photo R. de Andrade). Scale unit: 1 mm.

Female: Pedipalps, carapace, chelicerae, first coxae and first abdominal segments reddish brown, others parts yellowish brown. Tergites with more or less pronounced sclerotization along anterior margin. Vestitural setae delicate and long, smooth. Carapace 1,5-1,6 times longer than broad, anterior margin incurved medially, a weakly transverse depression (furrow?) near posterior margin (1/7 from posterior margin); no eyes or tubercles; about 30 setae (4-5 setae on anterior margin and 2-3 on posterior margin, 3-4 small setae on each side). Chelicera (fig. 2): 9 acuminate setae on hand, each finger with about 10 rounded teeth (3-4 distal ones larger), movable finger with a large, laterally displaced subterminal tooth, which is continuous with the remainder teeth; galea simple, serrula exterior 30, interior 18 blades; flagellum of 6 dentate setae (fig. 3). Tergites undivided, chaetotaxy: I-V 4-5, VI-IX 5-6, X 4, XI 6; pleural membranes smoothly, longitudinally striate; manducatory process acute, with 2 apical setae of unequal length (the second smaller and directed inward), 2 discal setae and 1-2 more basal small setae; palpal coxa scaly-reticulate, 9 setae, coxa I 5, II 4-5, III 5-6, IV 9; anterior genital operculum with 5-8 pores, sternite III with 19-23 marginal setae (about 5 central discal setae, smaller), about 2/3 setae at stigma, IV 4 and 2 supra-stigmal setae, remaining sternites 6/6/6/6/6/3; anal cone with 2 pairs of setae. Pedipalps (figs. 4-5): trochanter finely granulate basally, a rounded dorsal hump present; femur 12.5-13.3 times as long as broad, with a lateral protuberance (glandular?) hump near distal end, patella with a lateral protuberance near basal end.



FIGS 2-8

Spelaeobochica muchmorei sp. n. (del. R. de Andrade): 2. Left chelicera (holotype); 3. Flagellum (holotype); 4-5. Left pedipalpal femur+patella and chela (holotype); 6. Left leg I (female paratype); 7. Left leg IV (female paratype); 8. Left chela (tritonymph paratype). Scale unit: 0,5 mm (fig. 2), 0,6 mm (fig. 8) and 1 mm (figs 4, 5, 6, 7).

9.1-10 times, hand with pedicel 2.6 times, chela with pedicel 8.6-8.7 times longer than broad, finger 2.4 times longer than hand with pedicel; trichobothria: *ib* in distal half of hand dorsum; *ist* slightly distal of *est*, *est* is proximad compared to *st* on movable finger, *isb* in basal position much nearer to *esb* than to level of *sb*, *it* nearly at same level as *et*; *b-sb-st-t* nearly equidistant. Fixed finger with 79-97 teeth, movable finger with 83-102 teeth. The marginal teeth are cusped, slightly retrorsed and aligned in two or three vague rows (the more external teeth somewhat larger); the marginal teeth of fixed finger of holotype are aligned in two rows – the external one with 31 teeth; fixed finger on internal side with 24-31, movable finger with 18-24 accessory teeth; venom apparatus well developed in both fingers, nodus ramosus about 1/5 length of finger from tip. Legs slender: leg I (fig. 6): femur 10.4-11.3 times longer than deep and 2.6 times longer than patella, patella 3.7-4.1 times, tibia 15.6-15.9 times, basitarsus 6.1-6.3 times, telotarsus 16.2-17.1 times longer than deep and 2.2 times longer than basitarsus; leg IV (fig. 7): femur+patella 9.4-9.5 times, tibia 12.7-14.5 times, basitarsus 4.4-5.0 times, telotarsus 20.3-23.3 times longer than deep and 3.2-3.4 times longer than basitarsus; subterminal seta dentate, arolia undivided, shorter than smooth claws.

Measurements (mm): Carapace: 1.51/1.00 (holotype) 1.27/0.77 (paratype). Palps: femur 3.32/0.25 (2.76/0.22), patella 2.90/0.32 (2.50/0.25), hand with pedicel 1.29/0.50 (1.03/0.40), finger length 3.14 (2.46), chela length (with pedicel) 4.32 (3.48). Leg I: femur 1.70/0.15 (1.46/0.14), patella 0.66/0.18 (0.57/0.14), tibia 1.59/0.10 (1.25/0.08), basitarsus 0.55/0.09 (0.44/0.07), telotarsus 1.20/0.07 (0.97/0.06). Leg IV: femur + patella 2.75/0.29 (2.25/0.24), tibia 1.90/0.15 (1.60/0.11), basitarsus 0.61/0.14 (0.50/0.10), telotarsus 2.10/0.09 (1.62/0.08).

Tritonymph: Paler than adult (whitish coloration) with fingers of pedipalps and chelicerae reddish. Carapace 1.6 longer than broad (0.98/0.62); 26 setae (5 setae on anterior margin and 4 on posterior margin). Chelicerae: 8 acuminate setae on hand, each finger with 9 teeth; flagellum of 5 dentate setae (with the same aspect as the flagellum of adults). Palpal coxa with 6 setae, coxa I 4, II 4, III 4, IV 5. Sternite III with 6 setae plus 2/2 supra-stigmal setae, IV 4 plus 2/2 supra-stigmal setae, remaining sternites V-X 6 setae. Pedipalps: trichobothrial pattern as in figure 8; fixed finger with 60, movable finger with 63 teeth. fixed finger on internal side with 17, movable finger with 7 accessory teeth; femur 8.8 times as long as broad (1.58/0.18), with a protuberance near distal end, patella 6.5 times (1.30/0.20), with a lateral protuberance near basal end, hand with pedicel 2.3 times (0.72/0.32), chela with pedicel 7.2 times (2.30) longer than broad. finger 2.3 times (1.65) longer than hand with pedicel. Leg I: femur 7.9 times longer than deep (0.87/0.11) and 2.7 times longer than patella, patella 2.9 times (0.32/0.11), tibia 9 times (0.63/0.07), basitarsus 3.6 times (0.25/0.07), telotarsus 7.9 times longer than deep (0.55/0.07) and 2.2 times longer than basitarsus; leg IV: femur+patella 6.9 times (1.24/0.18), tibia 8.5 times (0.85/0.10), basitarsus 3.4 times (0.31/0.09), telotarsus 10.3 times longer than deep (0.93/0.09) and 3 times longer than basitarsus. subterminal setae similar to adult.

Affinities: A member of the family Bochicidae and the subfamily Bochicinae as outlined by Muchmore (1998). Within this subfamily it is placed into the genus *Spe-*

laeobochica Mahnert, 2001, and it shares with *Spelaeobochica allodentatus* Mahnert the following important characters: presence of accessory teeth on chelal fingers; presence of a distal glandular(?) tubercle on palpal femur, the latero-basal protuberance on palpal patella, and cheliceral palm with 9 setae.

It is easily distinguishable from the type species by its much more slender and longer pedipalps (femur 12.5 times vs. 4.2 times longer than broad, length 3.3mm vs. 0.95mm; chela at least 8.6 times longer than deep vs. 4.1 times) and legs (e.g. femur+patella IV at least 9.5 times longer than deep vs. 3.8 times), number of flagellar setae (6 vs. 4), much higher number of accessory teeth and the absence of setae on the female anterior genital operculum.

The generic diagnosis has to be completed in respect to the number of flagellar setae (4-6) and the slenderness of the pedipalps and legs.

Discussion: The type species *Spelaeobochica allodentatus* has been described from Bahia (Palmeiras, Gruta do Impossivel) and does not possess any morphological specialization to subterranean life conditions (Mahnert, 2001). The presence of a highly adapted cave-dwelling *Spelaeobochica* species from São Paulo may be surprising from a biogeographical point of view, since no real affinity could be found in the pseudoscorpion fauna from caves from Bahia and São Paulo regions (Mahnert, 2001). This finding just emphasizes the difficulties of collecting and of exploring of the hypogean fauna: intensive exploration of the caves of the Areias complex (Pinto-da-Rocha, 1995) yielded in 35 years only three species: *Pseudochthonius strinatii* (collected in 1968)(Beier, 1969); *Ideoroncus cavicola* (collected in 1996) (Mahnert, 2001) and *Spelaeobochica muchmorei* sp. n. (collected in 2001). The apparent rarity of this spectacular and “giant” species may reflect a very low population density, which is typical of troglobite species (Culver, 1982).

The species is characterized as a troglobite (restricted to hypogean habitat), following the classification of cave animal classification established by Gnaspini & Hoenen (1999). The size of the specimens, especially its very elongated appendages (more than 2 times more slender than the appendages of *S. allodentatus*), and the apparently low population density support this characterization.

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